



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/009,910	12/12/2001	Makoto Iida	81839.0107	7347

26021 7590 08/21/2003

HOGAN & HARTSON L.L.P.
500 S. GRAND AVENUE
SUITE 1900
LOS ANGELES, CA 90071-2611

EXAMINER

SONG, MATTHEW J

ART UNIT	PAPER NUMBER
----------	--------------

1765

DATE MAILED: 08/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Advisory Action

Application No.

10/009,910

Applicant(s)

IIDA ET AL.

Examiner

Matthew J Song

Art Unit

1765

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED

FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

Therefore, further action by the applicant is required to avoid abandonment of this application. A proper reply to a final rejection under 37 CFR 1.113 may only be either: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114.

PERIOD FOR REPLY [check either a) or b)]

- a) ☒ The period for reply expires 3 months from the mailing date of the final rejection.
- b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.
- ONLY CHECK THIS BOX WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

1. ☐ A Notice of Appeal was filed on _____. Appellant's Brief must be filed within the period set forth in 37 CFR 1.192(a), or any extension thereof (37 CFR 1.191(d)), to avoid dismissal of the appeal.
2. ☒ The proposed amendment(s) will not be entered because:
- (a) ☐ they raise new issues that would require further consideration and/or search (see NOTE below);
- (b) ☐ they raise the issue of new matter (see Note below);
- (c) ☒ they are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
- (d) ☐ they present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: _____

3. ☐ Applicant's reply has overcome the following rejection(s): _____.
4. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
5. ☒ The a) ☐ affidavit, b) ☐ exhibit, or c) ☒ request for reconsideration has been considered but does NOT place the application in condition for allowance because: See Continuation Sheet.
6. ☐ The affidavit or exhibit will NOT be considered because it is not directed SOLELY to issues which were newly raised by the Examiner in the final rejection.
7. ☒ For purposes of Appeal, the proposed amendment(s) a) ☒ will not be entered or b) ☐ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.

The status of the claim(s) is (or will be) as follows:

Claim(s) allowed: _____

Claim(s) objected to: _____

Claim(s) rejected: 1-18.

Claim(s) withdrawn from consideration: _____

8. ☐ The proposed drawing correction filed on _____ is a) ☐ approved or b) ☐ disapproved by the Examiner.
9. ☐ Note the attached Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
10. ☐ Other: _____

NADINE G. NORTON
PRIMARY EXAMINER



Response to Arguments

Applicant's arguments filed 8/11/2003 have been fully considered but they are not persuasive.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Iida is relied upon solely as a teaching of forming an N region over an entire plane of a crystal. Fujikawa is relied upon as a teaching of doping a silicon single crystal with carbon. The combination of Iida and Fujikawa teach all of the limitations of claim 1.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). Fujikawa teaches an advantage to doping a silicon single crystal with carbon; the advantage being a larger achievable oxygen precipitation fostering effect, note column 6, lines 59-63.

In response to applicant's argument that the single crystal having the N-region can be pulled faster than a single crystal in the case of not doping with carbon, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of

Art Unit: 1765

the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985). The combination of Iida and Fujikawa teach doping a silicon single crystal with carbon and forming a N region over the entire cross section of a crystal by controlling the pulling rate and temperature gradient; therefore increasing the pulling rate would flow naturally from the suggestion of the prior to dope the single crystal with carbon.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., compensation of the weak point of doping nitrogen by doping with carbon to obtain a synergistic effect (pg 8)) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant's argument that the idea of doping a N-region crystal with carbon cannot be derived has been considered but is not found persuasive. Fujikawa teaches doping a silicon single crystal with 0.5 ppma of carbon, which overlaps the concentration of 0.1 ppma or more taught by applicant, note page 9, lines 5-6 of the instant specification. Iida et al teach forming an N-region over the entire region of silicon single crystal by controlling the temperature gradient, G, and the pulling rate, V. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention that pulling rate can be optimized to obtain a N-region crystal.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching,

Art Unit: 1765

suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Fujikawa teaches an advantage to doping a silicon single crystal with carbon; the advantage being a larger achievable oxygen precipitation fostering effect, note column 6, lines 59-63.

Applicant's argument the cited references do not teach the specific concentration ranges of each impurity are combined is noted but is not found persuasive.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). It is noted that specific concentration ranges of each impurity are not taught in a single reference. However, Fujikawa teaches a carbon concentration, which overlaps the claimed concentration and Tamatsuka teaches the nitrogen and oxygen concentrations, which overlaps the claimed concentration; therefore reads on the instant claims. Furthermore, the selection of reaction parameters such as temperature and concentration is obvious (*In re Aller* 105 USPQ 233, 255 (CCPA 1955)).

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the specific concentration ranges of each impurity are combined to prevent the generation of secondary defects) are not recited in the rejected claim(s). Although the claims are interpreted in light of

Application/Control Number: 10/009,910

Page 5

Art Unit: 1765

the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).